

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAILED

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U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN S. OH
and
ETHAN T. DAVIS

Appeal No. 2004-0003
Application 09/483,569

ON BRIEF

Before THOMAS, HAIRSTON, and BLANKENSHIP, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1 through 3 and 9 through 11.

Representative claim 9 is reproduced below:

9. A system for reducing noise in an acoustical signal comprising:

 a sampler for obtaining discrete samples of the acoustical signal;

 an analog to digital converter coupled to the sampler an [sic, and] operable to convert the analog discrete samples into a digitized sample;

 a noise suppression circuit coupled to the analog to digital converter and operable to:

 receive the analog discrete samples;

 select a fixed number of samples;

 multiply the samples by a windowing function;

 compute the fast Fourier transform of the windowed samples to yield transformed windowed signals;

 select half of the transformed windowed signals;

 calculate a power estimate of the transformed windowed signals;

 calculate a smoothed power estimate by smoothing the power estimate over time;

 calculate a noise estimate;

 calculate a gain function from the noise estimate and the smoothed power estimate. [sic, ;]

 calculate a transformed speech signal by multiplying the gain function with the transformed windowed signal;

calculate an inversed fast Fourier transform of the transformed speech signal to yield a sampled speech signal; and

add the sampled speech signal to a portion of the speech signal of a previous frame.

The following reference is relied on by the examiner:

Bloebaum et al. (Bloebaum) 6,070,137 May 30, 2000
(filing date Jan. 7, 1998)

Claims 1 through 3 and 9 through 11 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies on Bloebaum alone.

Rather than repeat the positions of the appellants and the examiner, reference is made to the Brief and Reply Brief for appellants' positions, and to the Answer for the examiner's positions.

OPINION

We reverse.

We reverse the outstanding rejection under 35 U.S.C. § 103 because the subject matter encompassed by the claims on appeal must be reasonably understood without resort to speculation.

Presently, speculation and conjecture must be utilized by us and

by the artisan inasmuch as the claims on appeal do not adequately reflect what the disclosed invention is. Note In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962). Note also In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

New Rejections within 37 CFR § 1.196(b)

Claims 1 through 3 and 9 through 11 are rejected under the first and second paragraphs of 35 U.S.C. § 112.

Turning first to independent claim 9, this claim is indefinite because the analog to digital converter is not operatively recited to feed any data signals to any other recited element in this apparatus claim on appeal. The sampler obtains or produces discrete samples of an acoustical signal, whereas the analog to digital converter clause is coupled to this sampler and is operable to "convert the analog discrete samples" into digitized samples. Thus, the analog to digital converter clause characterizes the discrete samples as analog samples. The noise suppression circuit which follows is, in turn, coupled to the analog to digital converter and performs various recited functions. At this point the subject matter is consistent with that which is illustrated in figures 1 and 2 of the disclosed invention.

On the other hand, the noise suppression circuit that is coupled to the analog to digital converter as disclosed is further recited to "receive the analog discrete samples." This language clearly bypasses the functional and structural relationship of the analog to digital converter to the sampler which renders the claim not only indefinite but also nonenabled since this is clearly inconsistent with the disclosure set forth in figures 1 and 2 of the specification as filed.

Furthermore, the discussion at specification, page 7, indicates that the sampler 104 and the analog to digital converter 106 in figure 1 may be separate elements or combined into one unit. The output of the analog to digital converter is shown to feed directly the noise suppression unit 108, which is shown in detail in figure 2. Additionally, the "digital signal is then sent to noise suppression unit 108 where it is processed to remove the noise in accordance with the teaching of the present invention." Specification, page 7, lines 13-16.

It is thus clearly evident that the subject matter of independent claim 9 on appeal misdescribes appellants' disclosed invention in that it recites that the noise suppression circuit

receives an analog discrete sample where the disclosure otherwise indicates that it only receives a digital sampled audio or acoustic signal. Significantly, there is no enablement within 35 U.S.C. § 112, first paragraph, within the totality of the specification and drawings as filed, to teach the reception and processing of analog discrete samples by the noise suppression circuit as claimed.

Correspondingly, the nature of the subject matter of independent method claim 1 on appeal recites the reception of a stream of sampled acoustic signals. There is no corresponding recitation in claim 1 of a sampler and an analog to digital converter or their functions as in independent claim 9. In fact, the totality of the subject matter of the body of independent claim 1 is consistent with the recitation of the noise suppression circuit itself disclosed as element 108 in figure 1 and its discrete components in figure 2 as in independent claim 9. To the extent that independent claim 1 is intended or does read upon the reception of or processing of any noise suppression operations by analog circuitry or circuitry operating upon analog signals, the same reasons as set forth with our rejection under

the first and second paragraphs of 35 U.S.C. § 112 as to claim 9 apply here to claim 1. Because dependent claims 2, 3, 10 and 11 do not cure these noted deficiencies, both of our rejections set forth here extend to these dependent claims as well.

All claims on appeal also recite the feature of "smoothing the power estimate over time." The specification as filed recites this feature at page 9, lines 23-26, as "the power estimate is smoothed over a time index (as opposed to a spectral smoothing as is used in the spectral subtraction [sic] method) in step 310 [of figure 3]." The claimed recitation misdescribes the disclosed feature as occurring "over time" whereas it is disclosed as occurring "over a time index." Because this time index is undefined in the specification as a whole as filed, the claims are considered nonenabled as well. It is also unclear as to how the entire noise suppression circuit and its included and recited FFT can both operate in the spectrum domain yet the recited smoothing function operates apparently in the time domain.

In closing, the outstanding rejection of claims 1 through 3 and 9 through 11 under 35 U.S.C. § 103 is reversed, pro forma.

The examiner may consider the reinstatement of this rejection on the same and/or additional prior art once properly definite and disclosed and enabled claims are presented for examination. We have instituted new grounds of rejection under the first and second paragraphs of 35 U.S.C. § 112 for all claims on appeal.

This decision contains new grounds of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that, "[a] new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

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(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

REVERSED 37 CFR § 1.196(b)



JAMES D. THOMAS
Administrative Patent Judge

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